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EXAMINER	
ELALLAM, AHMED	

ART UNIT	PAPER NUMBER
2662	47

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/053,237	COHEN, EARL	
	Examiner	Art Unit	
	AHMED ELALLAM	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,9,11,12,15-18,20,21,23,26,27,29-32 and 44-110* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *44,52,55,56,61-65,78-89,98,99,102,103,106 and 107* is/are allowed.

6)☒ Claim(s) *See Continuation Sheet* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *43, 45-46*.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Continuation of Disposition of Claims: Claims rejected are 1-3, 9, 11,12, 15-18, 20, 21, 23, 26, 27, 29-32, 45-51, 53,54, 57-60, 66-77, 90-97,100,101,104,105 and 108-110.

DETAILED ACTION

This is responsive to Amendment filed on September 10, 2003.

Claims 1-3, 9, 11, 12, 15-18, 20, 21, 23, 26, 27, 29-32, 44-110 are pending.

Claims 1, 2, 3, 9, 11, 12, 15-18, 20, 21, 23, 26, 27, 29-32, 45-51, 53, 54, 57, 58-60, 66-77, 90-97, 100, 101, 104, 105, 108-110 are rejected.

Claims 44, 52, 55-56, 61-65, 78-89, 98-99, 102, 103, 106, and 107 are allowed.

Claim Objections

1. Claims 16, 18, 48 are objected to because of the following informalities:

In claim 16, the phrase "the port adapter converts input data to a known interface" is already recited in the parent claim 15.

In claim 18, the phrase "a network destination address of the at least one packet" is repeated twice.

Claim 48 is a duplicate of claim 47.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 47 and 48 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claims 47 and 48, the specification does not adequately describe the feature of "data compiler distributes the packets evenly among said plurality of processing engines ". More specifically, the specification does not describe any steps or process for the mostly even distribution to happen.

3. Claims 66, 90-96 and 110 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 66, the specification as originally filed does not disclose that a processing engine designate a high bandwidth link to receive the packets. The processing engines do not provide the designation.

Regarding claim 90, the specification as originally filed does not disclose the feature of "distributing, in response to said type of service **and** in response to the hash result, said received packet to a selected processing engine". More specifically the specification as originally filed does not disclose that the processing engine selection is based on both the hash value and the type of service.

Regarding claims 91-95 depends from rejected claim 90, thus they are subject to the same rejection.

Regarding claims 96 and 110, the specification as originally filed does not disclose the feature of electromagnetic signals propagating on a computer network comprising instructions for execution on a processor.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 54 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 54, it is not clear what is meant by the phrase "switch receiving the received packet from the processing engine after the processing engine finishes processing the packet as a processed packet". More specifically, the meaning of processing engine finishes processing of the packet as processed packet is vague.

6. The term "tag application update on the packet" in claim 58 is a relative term which renders the claim indefinite. The term "tag application update" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably appraised of the scope of the invention.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

8. Claims 1, 2, 9, 17, 18, 20, 21, 23, 26, 27, 29, 30-32, 45-47, 49-51, 53, 54, 57, 66, 70-77, 90, 94, 95, 97, 100, 101, 104, 105, 108 and 109 are rejected under 35 U.S.C. 102(e) as being anticipated by Bellenger, US (5,802,054).

Regarding claim 1, with reference to figure 3, Bellenger discloses a flow switch node 200 (claimed router) for distributing packets from a source to a destination, the flow switch node comprising:

A plurality of switch ports 201-201-X, (reads on the plurality of a plurality of route processing engines located within said router);

A flow detect 215 that generates an identifying tag for use in accessing the route table memory, the tags consist of a destination address at one of the data link layer or the network layer, a portion of the destination address, or hash values based on one or more fields in control segments of the frame (packet), and that the tags preferably act as flow signatures (claimed flow indicia) to associate a frame with a sequence of frames traversing the switch. (Reads on a mechanism that performs a hashing function on a destination address portion of a network layer in the packets transferred to the routing system, to produce an indicia of a flow); See abstract, column 3, lines 1-24 and column 10, lines 66-67 and column 11, lines 1-20.

The switch router table in connection with the arbiter 211, for routing the frame (packet) having the same tag to a selected switched port, see column 3, lines 24-40. (reads on means for switching packets with the same indicia of a flow to a single route processing engine of the plurality of route processing engines)

NOTE: the term frame of Bellenger is used in a generic sense as a unit of data transferred according to a network protocol, intending to include data units called frames, packets, cells, strings, or other names. See column 3, lines 66-67 and column 4, lines 1-3.

Regarding claim 2, Bellenger with reference to figure 1, discloses a high speed Ethernet connection between the network switch and an end device (i.e.: LAN). (Corresponding to the routing system further comprising at least one fast uplink connection to an external network to accept outgoing packets from a plurality of processing engines).

Regarding claim 9, Bellenger discloses that the network switch is scalable. See column 2, lines 41-48.

Regarding claim 17, Bellenger discloses, with reference to figure 3, Bellenger discloses a flow switch node 200 (claimed router) for distributing packets from a source to a destination, the flow switch node comprising:

A plurality of switch ports 201-201-X, (reads on the plurality of a plurality of route processing engines located within said router);

A flow detect 215 that generates an identifying tag for use in accessing the route table memory, the tags consist of a destination address at one of the data link layer or the network layer, a portion of the destination address, or hash values based on one or more fields in control segments of the frame (packet), and that the tags preferably act as flow signatures (claimed flow indicated by said hash). (reads on hashing a destination address portion of a network layer of at least one packet to determine a hash result, said hash result indicating a flow;); See abstract, column 3, lines 1-24 and column 10, lines 66-67 and column 11, lines 1-20.

The switch router table 212 in connection with the arbiter 211, for routing the frame (packet) having the same tag to a selected switched port, see column 3, lines 24-40. (reads on selecting one processing engine of said plurality of processing engines located within said router to process the flow indicated by said hash result).

NOTE: the term frame of Bellenger is used in a generic sense as a unit of data transferred according to a network protocol, intending to include data units called

frames, packets, cells, strings, or other names. See column 3, lines 66-67 and column 4, lines 1-3.

Regarding claim 18, Bellenger discloses that the hashing tag consist of destination address of a link layer or network layer. See column 3, lines 1-24 and column 10, lines 66-67 and column 11, lines 1-20. (reads on the network layer information comprises one or more of the following network in formation: a network source address of the at least one packet, a network destination address of the at least one packet, a source port of the at least one packet, and a protocol type value of the at least one packet).

Regarding claim 20, with reference to figure 5, Bellenger discloses that a series of hash codes is computed for various sections of the input data stream. Which bits are or are not included in each hash calculation is determined by a stored vector in a vector register corresponding to that calculation and that in the case of an IP packet (as example) the hash function starts at the 96th bit to find the "0800" code following the link-layer source address, it then includes the "45" code, 32 bits of IP source, 32 bits of IP destination, skips to protocol ID 8 bits, and then at byte 20 takes the source port 16 bits and the destination port 16 bits. The result is a 64 bit random number identifying this particular IP flow. (Corresponding to the hashing is computed by logically XORing an addresses, a port, and a protocol type value).

Regarding claim 21, with reference to figure 5, Bellenger discloses a route table 416 that contains entries for use in selecting a switch port using a hash value from the hash generator 414, see column 12, lines 25-38. (Reads providing a table containing

entries for use in selecting the one processing engine; selecting one entry in the table specified by an index value, the index value based upon the hash value to select the processing engine for the hash value).

Regarding claim 23, with reference to figure 5, Bellenger discloses a route table 416 that contains entries for use in selecting a switch port using a hash value from the hash generator 414, see column 12, lines 25-38. (reads on distributing, in response to the hash function, the packets among the plurality of processing engine).

Regarding claim 26, with reference to figure 3, Bellenger discloses a flow switch node 200 (claimed router) for distributing packets from a source to a destination, the flow switch node comprising:

A plurality of switch ports 201-201-X, (reads on the plurality of a plurality of route processing engines located within said router);

A flow detect 215 that generates an identifying tag for use in accessing the route table memory, the tags consist of a destination address at one of the data link layer or the network layer, a portion of the destination address, or hash values based on one or more fields in control segments of the frame (packet), and that the tags preferably act as flow signatures (claimed flow indicated by said hash). (Reads on means for hashing a destination address of a network layer of the at least one packet to obtain a hash result); See abstract, column 3, lines 1-24 and column 10, lines 66-67 and column 11, lines 1-20.

The switch router table 212 in connection with the arbiter 211, for routing the frame (packet) having the same tag to a selected switched port, see column 3, lines 24-

40. (reads on means, responsive to said hash result, for selecting said one processing engine of said plurality of processing engines located within said router to preserve a packet flow indicated by said destination address).

NOTE: the term frame of Bellenger is used in a generic sense as a unit of data transferred according to a network protocol, intending to include data units called frames, packets, cells, strings, or other names. See column 3, lines 66-67 and column 4, lines 1-3.

Regarding claims 27 and 72, Bellenger discloses that the hashing tag consist of destination address of a link layer or network layer. See column 3, lines 1-24 and column 10, lines 66-67 and column 11, lines 1-20. (Reads on the network layer flow information comprises: at least one of a network source address of the at least one packet, a network destination address of the at least one packet, a source port of the at least one packet, a destination address of the at least one packet, and a protocol type value of the at least one packet).

Regarding claim 29, with reference to figure 5, Bellenger discloses that a series of hash codes is computed for various sections of the input data stream. Which bits are or are not included in each hash calculation is determined by a stored vector in a vector register corresponding to that calculation and that in the case of an IP packet (as example) the hash function starts at the 96th bit to find the "0800" code following the link-layer source address, it then includes the "45" code, 32 bits of IP source, 32 bits of IP destination, skips to protocol ID 8 bits, and then at byte 20 takes the source port 16 bits and the destination port 16 bits. The result is a 64 bit random number identifying

this particular IP flow. (Reads on the hash value is computed by logically XORing the addresses, the ports, and the protocol type value).

Regarding claim 30, with reference to figure 5, Bellenger discloses a route table 416 that contains entries for use in selecting a switch port using a hash value from the hash generator 414, see column 12, lines 25-38. (Reads on means for providing a table containing entries for use in selecting the one processing engine; and means, responsive to the hash value, for selecting one entry in the table).

Regarding claims 31, 32 and 47, with reference to figure 5, Bellenger discloses a route table 416 that contains entries for use in selecting a switch port using a hash value from the hash generator 414, see column 12, lines 25-38. (Reads on the means for selecting carries out a hashing function that preserves the packet Flow, as recited in claim 31, and the means for selecting carries out a hashing function that causes the packets to be distributed among the processing engines, as recited in claim 32, and data compiler distribute the packets among the plurality of processing engines as recited in claim 47).

Regarding claims 45, 70, 71, 73, 90, 97, 100, 101, 104, 105, 108, with reference to figure 3, Bellenger discloses a flow switch node 200 (claimed router) for distributing packets from a source to a destination, the flow switch node comprising:

A plurality of switch ports 201-201-X, (reads on the plurality of a plurality of route processing engines located within said router);

Physical port 204, (reads on an interface for receiving packet from a network);

A flow detect 215 that generates an identifying tag for use in accessing the route table memory, the tags consist of a destination address at one of the data link layer or the network layer, a portion of the destination address, or hash values based on one or more fields in control segments of the frame (packet), and that the tags preferably act as flow signatures. See abstract, column 3, lines 1-24 and column 10, lines 66-67 and column 11, lines 1-20. (Reads on a data compiler as in claim 45, or a classification engine as in claim 97) to perform a hash function on a destination address of said received packet to generate a hash result, and to select a selected processing engine from said plurality of processing engines located within said router in response to said hash result);

BUS 210 in connection with switch router table and the arbiter 211, for routing the frame (packet) having the same tag to a selected switched port, see column 3, lines 24-40. (Reads on a switch to distribute said packet to the selected processing engine).

NOTE: the term frame of Bellenger is used in a generic sense as a unit of data transferred according to a network protocol, intending to include data units called frames, packets, cells, strings, or other names. See column 3, lines 66-67 and column 4, lines 1-3.

Regarding claim 46, with reference to figure 5, Bellenger discloses the table memory 416 in connection with the hash generator 414 for distributing the received packet to the proper switch port.

Regarding claims 49-51, 74-77, with reference to figure 5, Bellenger discloses that a series of hash codes is computed for various sections of the input data stream.

Which bits are or are not included in each hash calculation is determined by a stored vector in a vector register corresponding to that calculation and that in the case of an IP packet (as example) the hash function starts at the 96th bit to find the "0800" code following the link-layer source address, it then includes the "45" code, 32 bits of IP source, 32 bits of IP destination, skips to protocol ID 8 bits, and then at byte 20 takes the source port 16 bits and the destination port 16 bits. The result is a 64 bit random number identifying this particular IP flow.

Regarding claim 53, with reference to figure 3, Bellenger discloses a flow switch node 200 (claimed router) for distributing packets from a source to a destination, the flow switch node comprising:

A plurality of switch ports 201-201-X, (reads on the plurality of a plurality of route processing engines located within said router);

Physical port 204, (reads on an interface for receiving packet from a network);

A flow detect 215 that generates an identifying tag for use in accessing the route table memory, the tags consist of a destination address at one of the data link layer or the network layer, a portion of the destination address, or hash values based on one or more fields in control segments of the frame (packet), and that the tags preferably act as flow signatures. See abstract, column 3, lines 1-24 and column 10, lines 66-67 and column 11, lines 1-20. (Reads on a data compiler to perform a hash function on a destination address of said received packet to generate a hash result, and to select a selected processing engine from said plurality of processing engines located within said router in response to said hash result);

BUS 210 in connection with switch router table and the arbiter 211, for routing the frame (packet) having the same tag to a selected switched port, see column 3, lines 24-40. (Reads on a switch to distribute said packet to the selected processing engine).

It is inherent that Bellenger put data into a packet digest form before transferring them to another switch port, because that is needed for the hashing to be performed on some field of the packet.

NOTE: the term frame of Bellenger is used in a generic sense as a unit of data transferred according to a network protocol, intending to include data units called frames, packets, cells, strings, or other names. See column 3, lines 66-67 and column 4, lines 1-3.

Regarding claim 54, with reference 3, when packets are received at a physical port , a hashing mechanism is applied on destination address of the packet to route the packet to another switch port as indicated above with reference to claim 45. (Reads on switch receiving the received packet from the processing engine after the processing engine finishes processing said packet as a processed packet, and then the switch routing the processed packet to an interface to transmit the processed packet out to the network).

Regarding claim 57 and 94, Bellenger switch ports are for routing packets. Reads on processing engine perform routing of the packets).

Regarding claim 66, Bellenger with reference to figure 1, discloses a high speed Ethernet connection between the network switch and an end device (i.e.: LAN).

Regarding claim 95, claim 95 is computer readable medium implementation of rejected claims 17 and 71 and 90. Therefore claims 95 is rejected for the same reasons.

Regarding claim 96, claim 96 is rejected for similar reasons as indicated in claim 95 above.

Regarding claims 109, claim 109 is computer readable media implementation of rejected claims 101, thus it is rejected for the same reasons.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Partridge, US (6,160,811) in view of Weaver et al, US (6,173,384).

Regarding claim 11, with reference to figure 1, Partridge discloses a routing system for distributing packets in a network comprising:

A plurality of network interfaces 20-32 that transfer packets from a source to a destination;

A plurality of forwarding engines 33-35, (reads on plurality of route processing engines located within said router);

A cross-bar switch 10 interconnecting the plurality of network interfaces and the forwarding engines (reads on a fabric interconnecting said plurality of network interfaces and said plurality of route processing engines);

Partridge also discloses that a forwarding processor is based on the data contained in the header portion of the received data packet. See column 2, lines 10-23 and column 5, lines 3-43.

Partridge does not explicitly disclose a hashing function to hash a destination address of a packet to determine a distribution of the packets by the fabric, in response to an output of the hashing function.

However, Weaver in the same field of endeavor discloses hashing destination addresses (indexing) for forwarding data associated with the destination addresses. See column 4, lines 58-67 and column 5, lines 24-50.

Therefore, it would have been obvious to an ordinary person of skill in the art, at the time of the invention to implement the hashing mechanism taught by Weaver in the process of selecting the forwarding engine of Partridge so that transfer of packet through the router of partridge would be much faster given the fast feature of hashing mechanism in accessing forward tables.

Regarding claim 12, Partridge discloses that the interconnection is a crossbar. See figure 1.

10. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Partridge in view of Weaver and further in view Hartmann et al, US (5,905,873).

Regarding claim 15, with reference to figure 1, Partridge discloses a routing system for distributing packets in a network comprising:

A plurality of network interfaces 20-32 that transfer packets from a source to a destination;

A plurality of forwarding engines 33-35, (reads on plurality of route processing engines located within said router);

A cross-bar switch 10 interconnecting the plurality of network interfaces and the forwarding engines (reads on a fabric interconnecting said plurality of network interfaces and said plurality of route processing engines);

Partridge also discloses that a forwarding processor is based on the data contained in the header portion of the received data packet. See column 2, lines 10-23 and column 5, lines 3-43.

Partridge does not explicitly disclose a hashing function to hash a destination address of a packet to determine a distribution of the packets by the fabric, in response to an output of the hashing function.

However, Weaver in the same field of endeavor discloses hashing destination addresses (indexing) for forwarding data associated with the destination addresses. See column 4, lines 58-67 and column 5, lines 24-50.

Therefore, it would have been obvious to an ordinary person of skill in the art, at the time of the invention to implement the hashing mechanism taught by Weaver in the process of selecting the forwarding engine of Partridge so that transfer of packet

through the router of partridge would be much faster given the fast feature of hashing mechanism in accessing forward tables.

Partridge in view of Weaver do not disclose a port adapter that converts input data to a desired interface.

However, Hartman with reference to figure 5, discloses a router system in which a port adapter 502 receives packet data having a first packet format and converts it to a generic packet format. See column 11, lines 3-18.

Therefore, it would have been obvious to an ordinary person of skill in the art, at the time of the invention to implement the port adapter of Hartman in the routing system of Partridge/Weaver so that routing of different protocol types of packets can be provided.

Regarding claim 16, Partridge discloses that the data port module 20-32 (interfaces) receives/transmit Internet packets, see column 3, lines 34-42.

11. Claims 59, 60, 67, 68, 91-93 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bellenger.

Regarding claim 59, Bellenger discloses performing filtering on the packets, see column 14, lines 56-65 and column 15, lines 37-43.

Bellenger does not explicitly disclose that filtering is carried on the packet at the switch port.

However, it would have been obvious to an ordinary person of skill in the art to make implement the filtering at the switch port level as a design choice.

Regarding claim 60, Bellenger does not explicitly disclose in case of a switch port failure, packets are allocated to other switch ports for route processing. However bypassing an element of a switching system in case of failure is well known in the art. Examiner takes Official Notice that since such feature is well known in the art, it would have been obvious to an ordinary person of skill in the art, at the time the invention was made to provide the port switches Bellenger with one of known node-failure bypassing methods so that the port switches of Bellenger would be reliable.

Regarding claims 67, 68, 93, Bellenger does not disclose the port switch perform encryption or decryption on the packets as recited in respective in claims 67, 68 and 93.

However, Examiner takes official notice that packet encryption and decryption methods/apparatus are well known in the art. It would have been obvious to an ordinary person of skill in the art at the time the invention was made to enable the port switches of Bellenger with encryption/decryption method/apparatus so that transmitted packet to the external network can be undetected by intruders and received encrypted packet can be decrypted for further processing if that is needed.

Regarding claim 91, Bellenger discloses substantially all the limitation of the parent claim 90, except it doe not disclose that performing compression.

However, Examiner takes official notice that packet compression is well in the art. It would have been obvious to an ordinary person of skill in the art at the time the invention was made to enable the port switches of Bellenger with compressing the received packet so that uplink bandwidth can be preserved.

Regarding claim 92, Bellenger discloses substantially all the limitation of the parent claim 90, except it doe not disclose that performing decompression.

However, Examiner takes official notice that packet decompression is well in the art. It would have been obvious to an ordinary person of skill in the art at the time the invention was made to enable the port switches of Bellenger with decompressing processing so that representative original data from received compressed packets can be recovered.

12. Claims 3 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bellenger in view of Varghese et al, US (5,905,723).

Regarding claim 3 and 69, Bellenger discloses substantially all the limitations of claim 3 and 69, except that it does not disclose that the switch ports uses a crossbar for switching.

However, with reference to Fig .1 and 2, Varghese discloses a scalable routing system for distributing packets in a network, comprising a crossbar switch interconnecting the network interfaces and the FE (forwarding engines).

Therefore, it would have been obvious to an ordinary person of skill in the art, at the time of the invention to have the switching of Bellenger carried out using the crossbar switching of Varghese instead of bus switching so that switching of data would be much faster among the switching ports.

Allowable Subject Matter

13. Claims 44, 52, 55-56, 61-65, 78-89, 98-99, 102, 103, 106, and 107 are allowed.

Response to Arguments

14. Applicant's arguments with respect to claims 1, 2, 3 9, 11, 1217, 18, 20-21, 26, 27, 29, 30, 31, 45-51, 53-54, 57,59, 60, 67-72, 74-77, 90-97, 100, 101, 104, 105, 108, 109 and 110 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to AHMED ELALLAM whose telephone number is (703) 308-6069. The examiner can normally be reached on 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kizou Hassan can be reached on (703) 305-4744. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

AHMED ELALLAM
Examiner
Art Unit 2662
Thursday, December 18, 2003

HASSAN KIZOU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600